

5/42

DART AEROSPACE LTD		Work Order:	24329
Description: Escape Panel Modification Kit		Part Number:	D3224-1 D412-709-011
Dwg: D3224 Rev. A; D3239 Rev. A		Qty:	20 Kit(s)
Ref:		Page 1 of 2	

Step	Location	Procedure	By	Date	Qty
1	DC	Issue Traveler Note: D412-709-011 Kit consists of (1) D3224-1; (2) D3239-1. Kits to be made in multiples of 10.	HA	05.09.26	20
2	DC	Photocopy bluefile and create labels per PPP D412-709-011 CHG001	/	/	/
3	MV	Cut blank: (30.625" x 25.500") Grain along 25.500" Material: 2024-T3 (QQ-A-250/4) 0.063" thick (M2024T3S0.063) issue p.o. 200879 Identify for D3224-1 GFE Batch: _____	DL	05.09.26	20
4	MV	Cut (2) blanks per (1) D412-709-011 Kit Cut blanks: (5.10" x 5.10") Material: 6061-T6 (QQ-A-250/11) 0.050" thick (M6061T6S0.050) Identify for D3239-1 Batch: _____	/	/	/
5	MV	Machine D3224-1 as per Folio FA390 and Dwg D3224 Stack of 10 Identify as D3224-1	/	/	/
6	QC2	Inspect parts as they come off the CNC machine	/	/	/
7	MV	Deburr to take measurement	/	/	/
8	QC8	Second check	/	/	/
9	MV	Machine D3239-1 as per Folio FA393 and Dwg D3239 Stack of 10 Identify as D3239-1	/	/	/
10	QC2	Inspect parts as they come off the CNC machine	/	/	/
11	MV	Deburr to take measurement	/	/	/
12	QC8	Second check	/	/	/
13A	GA	Deburr D3224-1 & D3239-1 Stacks	DL	05/11/29	20
14	FP	Chemical Conversion Coat as per QSI 005 4.1	SAD	05/12/03	19
15	QC5	Inspect work to Step 14	2	05.12.05	19
13B	CB	Form D3224-1 as per Dwg D3224	/	/	/

3b Stores/AG Receive & Inspect
Ensure certificate attached

3c QC6 Dimensional Check. 15.11.25

RELEASED

05/11/29 20
05/11/29 19

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Mfg / Design Mgr	Approval QC Inspector
05-09-26	3/ 138	permanent change	U	05-09-26		U	

NCR: 24329		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Design Mgr	Approval QC Inspector
			Initial Design Mgr	Action Description Design Mgr	Sign & Date			
05-11-14	3	Parts made with grain in wrong direction. Parts no good.	 05-12-05	Return to supplier and scrap, have them fabricate 03224-1 AS per Dwg 03224. See Attached e-mail.	 05-12-05	 05-12-05	 05-12-05	 05-11-16

Part No: D3224-1 PAR #: N/A Fault Category: SupplierNCR: ☒ Yes ☐ No DQA: Date: 05/12/07

NOTE: Date & initial all entries

Alcor Inc.

QA: N/C Closed:

Date: 05.12.08

DART AEROSPACE LTD		Work Order:	24329
Description: Escape Panel Modification Kit		Part Number:	D3224-1 D412-700-011
Dwg: D3224 Rev. A; D3239 Rev. A		Qty:	20 Kit(s)
Ref:		Page 2 of 2	

Step	Location	Procedure	By	Date	Qty																																																								
16	KP	<p>Pick: Packing Kit (Note: D3224-1 & D3239-1 are on BOM as material from Steps 3-4)</p> <table><thead><tr><th>Qty</th><th>Part Number</th><th>Description</th><th>Batch</th></tr></thead><tbody><tr><td>1</td><td>D3118-3</td><td>Sign Assembly</td><td></td></tr><tr><td>1</td><td>D3136-043</td><td>Window Assembly</td><td></td></tr><tr><td>1</td><td>D3224-1</td><td>Frame</td><td></td></tr><tr><td>1</td><td>D3237-1-0980</td><td>Seal Retainer</td><td></td></tr><tr><td>1</td><td>D3237-3-0980</td><td>Seal Filler</td><td></td></tr><tr><td>2</td><td>D3239-1</td><td>Cover</td><td></td></tr><tr><td>3</td><td>AN6-20A</td><td>Bolt</td><td></td></tr><tr><td>2</td><td>AN960JD10L</td><td>Washer</td><td></td></tr><tr><td>5</td><td>AN960JD616</td><td>Washer</td><td></td></tr><tr><td>5</td><td>AN960JD616L</td><td>Washer</td><td></td></tr><tr><td>2</td><td>MS21042L3</td><td>Nut (or -3)</td><td></td></tr><tr><td>3</td><td>MS21042L6</td><td>Nut (or -6)</td><td></td></tr><tr><td>2</td><td>MS35207-262</td><td>Screw</td><td></td></tr></tbody></table>	Qty	Part Number	Description	Batch	1	D3118-3	Sign Assembly		1	D3136-043	Window Assembly		1	D3224-1	Frame		1	D3237-1-0980	Seal Retainer		1	D3237-3-0980	Seal Filler		2	D3239-1	Cover		3	AN6-20A	Bolt		2	AN960JD10L	Washer		5	AN960JD616	Washer		5	AN960JD616L	Washer		2	MS21042L3	Nut (or -3)		3	MS21042L6	Nut (or -6)		2	MS35207-262	Screw				
Qty	Part Number	Description	Batch																																																										
1	D3118-3	Sign Assembly																																																											
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1	D3224-1	Frame																																																											
1	D3237-1-0980	Seal Retainer																																																											
1	D3237-3-0980	Seal Filler																																																											
2	D3239-1	Cover																																																											
3	AN6-20A	Bolt																																																											
2	AN960JD10L	Washer																																																											
5	AN960JD616	Washer																																																											
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2	MS21042L3	Nut (or -3)																																																											
3	MS21042L6	Nut (or -6)																																																											
2	MS35207-262	Screw																																																											
17	QC5	Inspect Kit 100% for Completeness on the W/O WORK																																																											
18	PK	Identify and pack for shipping as per PPP D412-700-011 STOCK																																																											
19	AC	Cost / part																																																											
20	DC	Close W/O Inspect Level 21																																																											

Rev	Date	Change	Revised By	Approved
A	04.03.03	New issue	KJ/DS	

RELEASED
04.03.04

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Mfg / Design Mgr	Approval QC Inspector

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Design Mgr	Approval QC Inspector
			Initial Design Mgr	Action Description Design Mgr	Sign & Date			

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

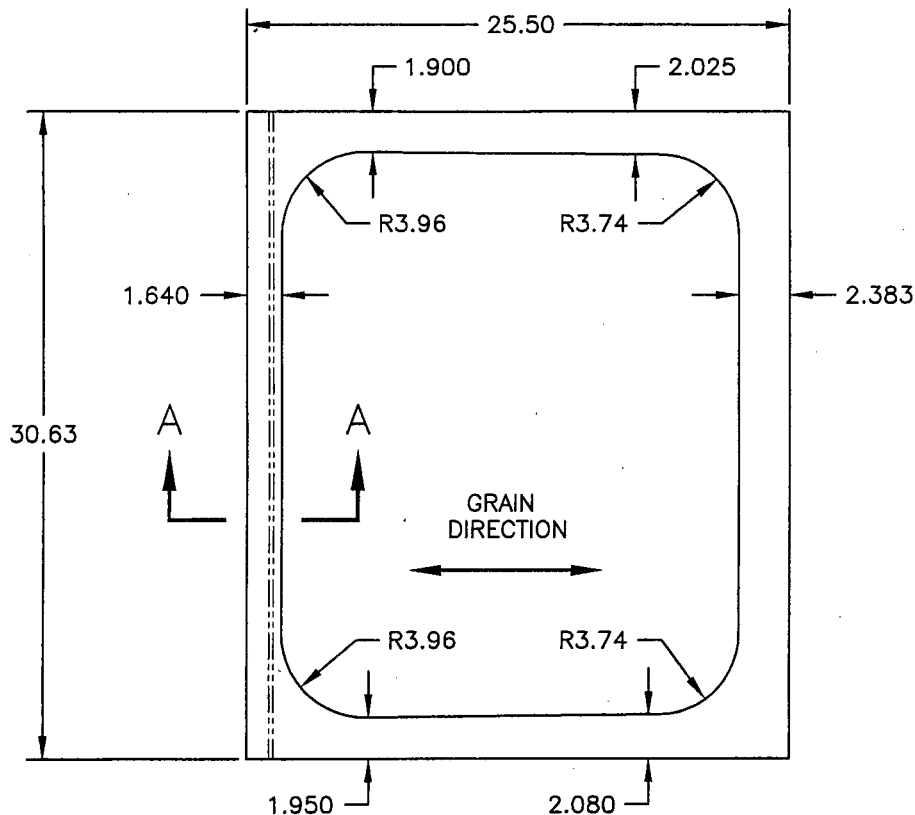
NOTE: Date & initial all entries

QA: N/C Closed: _____ Date: _____

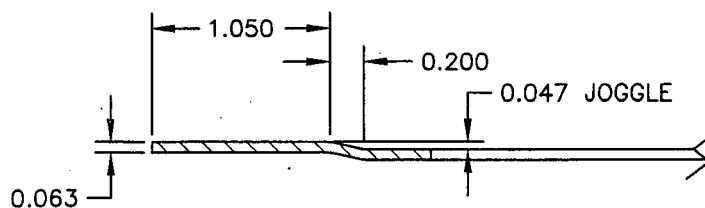


DESIGN 	DRAWN BY 	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED 	APPROVED 	DRAWING NO. D3224	REV. A SHEET 1 OF 1
DATE 03.10.21		TITLE FRAME	SCALE NTS
A	03.10.21	NEW ISSUE	

RELEASED
04.02.03



D3224-1



SECTION A-A
SCALE 8:1

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 24329

NOTES:

- 1) BREAK ALL UNMARKED SHARP EDGES 0.010 TO 0.020
- 2) MATERIAL: 2024-T3 (QQ-A-250/4), 0.063 THICK (REF. M2024T3S.063)
- 3) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
- 4) ALL DIMENSIONS ARE IN INCHES
- 5) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED

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Job Costing Report

Dart Aerospace Ltd.
Hawkesbury

Sep 26, 2005
10:48 am

Work Order No : 0024329
Project Name : D3224-1
Project For : WK542
Work Order Type : Main
Main WO Number :
House Part Number : D3224-1
Description : Frame
Manufactured : Yes
Amount Req'd : 20
Amount Done : 0
Start Date : 09-26-05
Est Finish Date : 10-12-05
Act Finish Date :
Drawings Req'd : No
Ok for Approval :
Approval Rec'd :

Department Code:
Burden Flags : NNNNNNNN
WO Status : Open
Invoice State : Not Invoiced
Invoice Date :
Invoice Number :
Invoice Amount : 0.00
Order Entry No :
OE Value : 0.00
Est Mark Up : 0.000%
Actual Mark Up : 0.000%
\$0 Posted to Finished Goods

	Estimated	Actual	Var. %	Posted	To Post
Material Cost :	0.00	0.00	0.00	0.00	0.00
Engineering Hours :	0.00	0.00	0.00		
Engineering Cost :	0.00	0.00	0.00	0.00	0.00
Production Hours :	0.00	0.00	0.00		
Production Cost :	0.00	0.00	0.00	0.00	0.00
Packaging Hours :	0.00	0.00	0.00		
Packaging Cost :	0.00	0.00	0.00	0.00	0.00
OverHead Hours :	0.00	0.00	0.00		
OverHead Cost :	0.00	0.00	0.00	0.00	0.00
CNC Hours :	0.00	0.00	0.00		
CNC :	0.00	0.00	0.00	0.00	0.00
Misc. Hours :	0.00	0.00	0.00		
Misc. :	0.00	0.00	0.00	0.00	0.00
Burden :	0.00	0.00	0.00		
Total Cost :	0.00	0.00	0.00		
Mark up :	0.000	0.000			
Selling Cost :	0.00	0.00			

	Estimated	Actual
Labour Hrs/Amount Done :	0.00	0.00
Profits/(Loss) :	0.00	0.00



180 AVENUE LABROSSE
POINTE-CLAIRE, QUÉ., CANADA H9R 1A1
TÉL.: (514) 630-4877 - FAX: (514) 630-4849

GFI est une division de Thomas & Betts Fabrication Inc. / GFI is a division of Thomas & Betts Manufacturing Inc.

VENDU À / SOLD TO

DART AEROSPACE LTD
1270 ABERDEEN ST.
HAWKESBURY, ON, K6A 1K7



BON DE LIVRAISON - SHIPPING MEMO

DATE DE LIVRAISON SHIPPING DATE	N° BON DE LIVRAISON SHIPPING MEMO NO.
2005/11/23	0325309

EXPÉDIÉ À / SHIPPED TO

DART AEROSPACE LTD
1270 ABERDEEN ST.
HAWKESBURY, ON, K6A 1K7

CODE DE CLIENT CUSTOMER CODE		N° DE CONTRAT JOB NO.	N° COMMANDE PO NO.	VIA SHIP VIA
DART GFI-0299		J0135939	2008720(R)	
QUANTITE QUANTITY	VOTRE N° DE PIÈCE YOUR PART NO.	DESCRIPTION		
19	D3224	FRAME REWORK RNC 4101		

TOUTES LES RÉCLAMATIONS DOIVENT ÊTRE FAITES EN DEDANS DE 5 JOURS DE LA RÉCEPTION
ALL CLAIMS MUST BE MADE WITHIN 5 DAYS OF RECEIPT OF GOODS.

REC U PAR / RECEIVED BY

COMPTABILITE / ACCOUNTING

CERTIFICATE OF COMPLIANCE
CERTIFICAT DE CONFORMITE



Member of **Thomas & Betts**

ABROSSE AVENUE
ITE CLAIRE, QC
H1A1

DART AEROSPACE LTD
1270 ABERDEEN ST.
HAWKESBURY, ON K6A 1K7

CERTIFICATE NO.	2	OUR JOB NO	J0135939	SHIPPING MEMO	0325309
QUANTITY	PURCHASE ORDER	PART NUMBER	REV	NAME	DWG ISSUE
19 PCS	2008720 R	D3224	A	FRAME	A
MATERIAL	SUPPLIED BY		MAT. REL. NO.		
L 2024-T3 (QQ-A-250/4)	ALCOA INC		407672 ATT'D		
PROCESS	PROCESSOR		RELEASE NOTE #		
REWORK AS PER RNC 4101					

WE HEREBY CERTIFY ALL THE PARTS COVERED BY THIS CERTIFICATE HAVE BEEN MANUFACTURED FROM MATERIAL SUPPLIED
RELEASE NOTE SHOWN ABOVE AND THAT ALL PARTS HAVE BEEN INDIVIDUALLY INSPECTED AND CONFORM TO THE
DRAWINGS AND PURCHASE ORDER REFERENCED ABOVE.

DATE: 23 NOVEMBER 2005
G.F.I. Q.C. REP. *Salmon Harold*

549-0

**LES MÉTAUX
SPÉCIALISÉS**
SAMUELProgramme d'Assurance Qualité Enregistré / Registered Q.A. Program
ISO 9001:2000 AS9100**LETTRE DE CONFORMITÉ - LETTER OF COMPLIANCE**

Date: 17 OCTOBRE 2005

Company Name: G.F.I. Division of Thomas & Betts limited
Address: 180 avenue Labrosse
City: Pointe Claire, Qué.
Zip Code: H9R 1A1

du client: 0059438

de commande SSMQ: 846599
SSMQ's Order #:

Customer's order #:

La présente est pour certifier que le matériel détaillé ci-dessous est conforme aux exigences de votre commande et des normes du grade tel que décrit:

The following is to certify that the material listed below meets your order requirements and grade standards as described:

Notre/Our Item #	# de pièces/ # of pieces	Épaisseur/Grandeur Guage/Size	Alliage/Trempe Alloy/Temper	Spécification / Specification	Lot/Heat
1	3	.063" X 48" X 144"	2024 T3	AMS-QQ-A-250/4	407672

Bien à vous,
Yours truly,



Commis à l'administration.
Administration Clerk.



CERTIFIED INSPECTION REPORT

Alcoa inc.

PITTSBURGH, PA DAVENPORT WORKS

Ship From: RIVERDALE, IA.

We hereby certify that the material covered by this certificate has been inspected with, and has been found to meet, the requirements described therein, including any specifications forming a part of the description and that samples representative of the material and the composition limits and had the mechanical properties shown on the face of this sheet.

Mark J. Vrabec

Mark J. Vrabec
Director of Manufacturing Davenport Works

Kenton P. Young

Kenton P. Young
Quality Assurance Manager

430182
Ship Date

2005-06-14

P.O. No./Govt Contract No.

N17299

160110

B.L. No.

77713

Invoice No.

17121

Customer

SAMUEL SON-MISSISS

Alcoa No. Item

DCE10320-1

Page 1

Ship To: SAMUEL SON & CO. LIMITED,
2360 DIXIE ROAD,
MISSISSAUGA, ON, L4Y 1Z7

Item Description

.063 IN TK X 48.000 IN W CAT D 164134 (N) A/T 2024-
T3 COILED SHEET MILL FINISH. PER AMS-QQ-A-
250/4 REV A PER AMS4037 REV N PER ASTM B209 REV
04 ((NOT MARKED)) LIGHTLY OILED
COIL SIZES: ID 20 IN COIL WGTS: MAX 5625 LB
PKG WGT: 6000 LB EXPORT PACK QUAN TOL +/-25
* CQR D164134 REV 15 CUST REQ 05-06-
11 *** W/E 05-06-18 ***

Num	Package Ticket	Lot	Weight	Quantity	UOM	Pc Id/Serl
1	289024	407672	4499	1	PC	
2	290731	420096	4578	1	PC	
			9077	2		

Notes for CQR: D164134.15

PRODUCT PRODUCED AND MARKED TO THE REQUIREMENTS OF AMS-QQ-A-250/4 ALSO MEETS THE REQUIREMENTS OF QQ-A-250/4E, AMENDMENT 2.
PRODUCT PRODUCED AND MARKED TO THE REQUIREMENTS OF QQ-A-250/4E AMENDMENT 2 ALSO MEETS THE REQUIREMENTS OF AMS-QQ-A-250/4.

CQR: D164134.15 -Specification Limits

Temp	Dir	UTS	TYS	EL4D
		KSI	KSI	PCT
T3	Long Transv.	Max		
		Min	63.0	42.0 15

Chemical Composition	SI	FE	CU	MN	MG	CR	ZN	TI	Other	Other
									Each	Total Aluminum
Alloy 2024	Max	.50	.50	4.9	.9	1.8	.10	.25	.15	.05 .15
	Min			3.8	.30	1.2				REMAIN

Lot: 407672 -Mechanical, Physical, Metallography, Quantometer Results

Temp	Dir	No. Test	UTS	TYS	EL4D
			KSI	KSI	PCT
T3	Long Transv.	2	Max	68.1	47.7 17.8
			Min	67.9	47.2 17

SAMUEL SPECIALITY M

10:40:49 a.m.

10-10-2005

CERTIFIED INSPECTION REPORT

Alcoa inc.

PITTSBURGH, PA DAVENPORT WORKS

Ship From: RIVERDALE, IA.

We hereby certify that the material covered by this certificate has been inspected with, and has been found to meet, the applicable requirements described therein, including any specifications forming a part of the description and that samples representative of the material met the composition limits and had the mechanical properties shown on the face of this sheet.

Mark J. Vrabec

Mark J. Vrabec
Director of Manufacturing Davenport Works

Kenton P. Young

Kenton P. Young
Quality Assurance Manager

430182
Ship Date

2005-06-14

P.O. No./Govt Contract No.

N17299

160110

B.L. No.

77713

Invoice No.

17121

Customer

SAMUEL SON-MISSISS

Alcoa No. Item

DCZ10320-1

Page 2

Lot: 407672 - Mechanical, Physical, Metallography, Quantometer Results (cont.) -----
Cast Number Chemical SI FE CU MN MG CR ZN TI
H9189045 Actuals .07 .16 4.7 .63 1.5 .00 .08 .03

Lot: 420096 - Mechanical, Physical, Metallography, Quantometer Results -----

Temp	Dir	No. Test	UTS KSI	TYS KSI	EL4D PCT
T3	Long Transv.	2	Max 67.8	46.5	18.5
			Min 67.7	46.5	17

Cast Number Chemical SI FE CU MN MG CR ZN TI
H9167014 Actuals .08 .18 4.7 .63 1.6 .00 .07 .03

SAMUEL SPECIALTY

10:41:24 a.m. 10-10-2005

4/4

Jason Murdoch

From: David Shepherd [davids@dartaero.com]
Sent: November 15, 2005 6:31 PM
To: Jason Murdoch
Cc: Linda Lacelle; Bill Beckett
Subject: Re: escape panel mod kit

Jason,

As you probably know, the grain direction is important because of the bending and particularly important because its 2024-T3.

I would go back to the vendor and tell them that they are unacceptable.

David

----- Original Message -----

From: Jason Murdoch
To: davids@dartaero.com
Sent: Monday, November 14, 2005 4:55 AM
Subject: escape panel mod kit

Hey David,

Sorry too bother you on your day off, but we received some d3224-1 finished parts from a supplier, and all the dims are bang on but the grain direction is opposite of the dwg(d3224). Is this acceptable?

jmurdoch@dartaero.com

Q.C. Inspector

Date: Thursday, 11/17/2005 1:10:18 PM
User: Linda Lacelle

Process Sheet

Customer :	CU-DAR001 Dart Helicopters Services	Drawing Name :	FRAME
Job Number :	24329		
Estimate Number :	10300		
P.O. Number :		Part Number :	D32241
This Issue :	11/17/2005	S.O. No. :	
Prsht Rev. :	NC	Drawing Number :	D3224 REV A
First Issue :	/ /	Project Number :	
Previous Run :	24270A	Drawing Revision :	A
Written By :		Material :	
Checked & Approved By :		Due Date :	11/30/2005
Comment :	Est Rev:A New Issue 05-11-06 JLM	Qty:	20
		Um:	Each

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
---------	-----------------------	---------------

1.0	PG	PURCHASING
-----	----	------------



Comment: PURCHASING

Issue P/O: _____
Email or Ship DXF file to vendor
Laser Cut D3224-1 flat pattern per Dwg D3224
Possible Supplier: GFI
Material release note is required

2.0	D3224B	Frame
-----	--------	-------

3.0	PACKAGING 1	PACKAGING RESOURCE #1
-----	-------------	-----------------------



Comment: PACKAGING RESOURCE #1

Receive & Inspect For Transit Damage
Ensure material certification is attached

4.0	QC6	DIMENSIONAL CHECK
-----	-----	-------------------



Comment: DIMENSIONAL CHECK

5.0	SMALL FAB 1	SMALL & MEDIUM FAB RESOURCE 1
-----	-------------	-------------------------------



Comment: SMALL & MEDIUM FAB RESOURCE 1

Deburr

6.0	BRAKE NC	NC BRAKE
-----	----------	----------



Comment: NC BRAKE

Form as per Dwg D3224

Date: Thursday, 11/17/2005 1:10:19 PM
User: Linda Lacelle

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: FRAME

Job Number: 24329

Part Number: D32241

Job Number:



Seq. #:

Machine Or Operation:

Description :

7.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

8.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1

9.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

10.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: _____

Job Completion



Job Costing Report

Dart Aerospace Ltd.
Hawkesbury

Nov 08, 2005
11:16 am

Work Order No : 0024329
Project Name : D3224-1
Project For : WK542
Work Order Type : Main
Main WO Number :
House Part Number : D3224-1
Description : Frame
Manufactured : Yes
Amount Req'd : 20
Amount Done : 0
Start Date : 09-26-05
Est Finish Date : 10-12-05
Act Finish Date :
Drawings Req'd : No
Ok for Approval :
Approval Rec'd :

Department Code:
Burden Flags : NNNNNNNN
WO Status : Open
Invoice State : Not Invoiced
Invoice Date :
Invoice Number :
Invoice Amount : 0.00
Order Entry No :
OE Value : 0.00
Est Margin : 0.000%
Actual Margin : 0.000%
\$0 Posted to Finished Goods

	Estimated	Actual	Var. %	Posted	To Post
Material Cost :	0.00	0.00	0.00	0.00	0.00
Engineering Hours :	0.00	0.00	0.00		
Engineering Cost :	0.00	0.00	0.00	0.00	0.00
Production Hours :	0.00	0.00	0.00		
Production Cost :	0.00	0.00	0.00	0.00	0.00
Packaging Hours :	0.00	0.00	0.00		
Packaging Cost :	0.00	0.00	0.00	0.00	0.00
OverHead Hours :	0.00	0.00	0.00		
OverHead Cost :	0.00	0.00	0.00	0.00	0.00
CNC Hours :	0.00	0.00	0.00		
CNC :	0.00	0.00	0.00	0.00	0.00
Misc. Hours :	0.00	0.00	0.00		
Misc. :	0.00	0.00	0.00	0.00	0.00
Burden :	0.00	0.00	0.00		
Total Cost :	0.00	0.00	0.00		
Margin :	0.000	0.000			
Selling Cost :	0.00	0.00			

	Estimated	Actual
Labour Hrs/Amount Done :	0.00	0.00
Profits/(Loss) :	0.00	0.00